

No. 719,385.

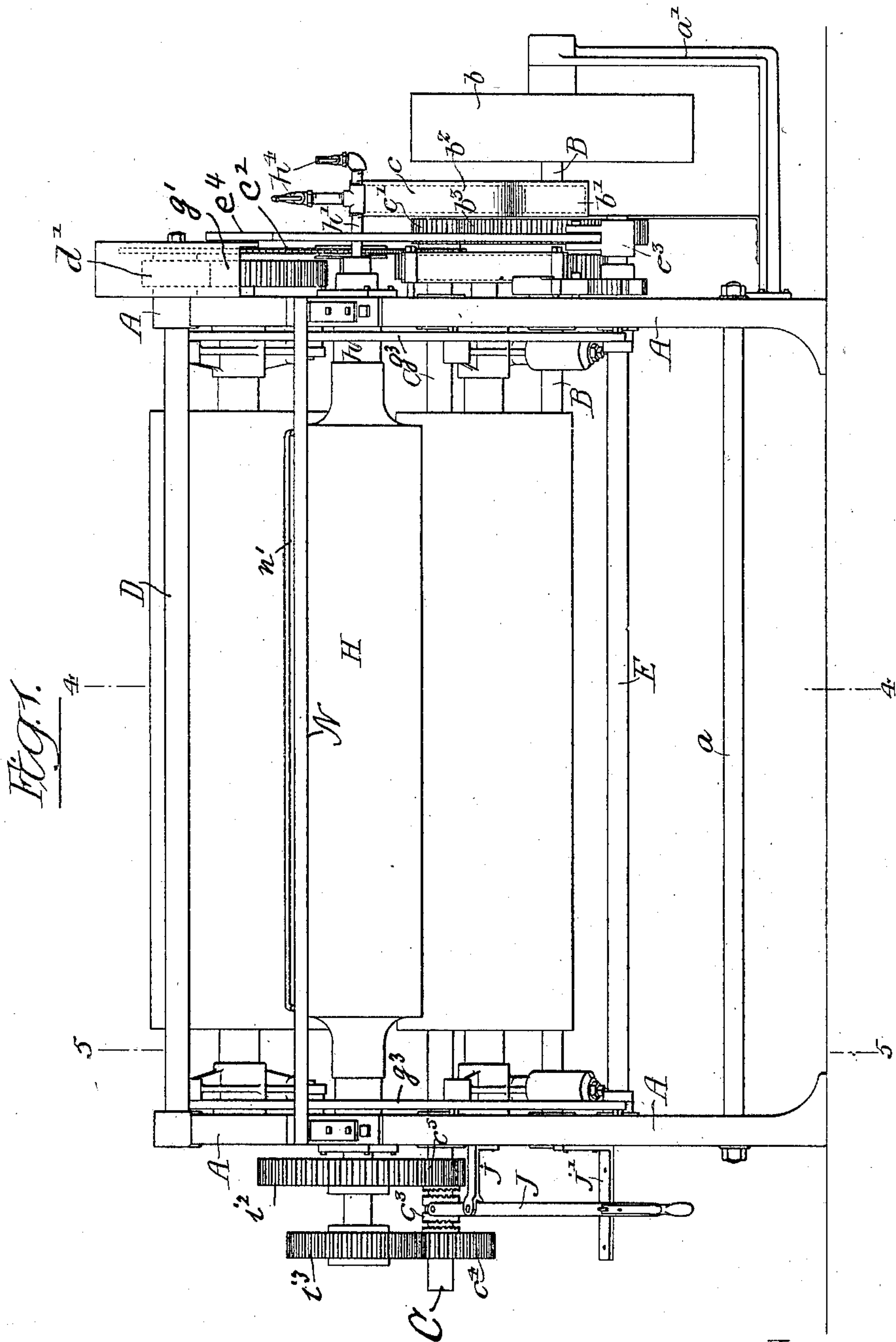
PATENTED JAN. 27, 1903.

E. G. SMITH.  
IRONING MACHINE.

APPLICATION FILED OCT. 28, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:-

*Norman E. McKim.*  
*William E. Bradley.*

Inventor:-

*Ernest G. Smith,*  
*by his Attorneys*  
*Harmon & Harmon*



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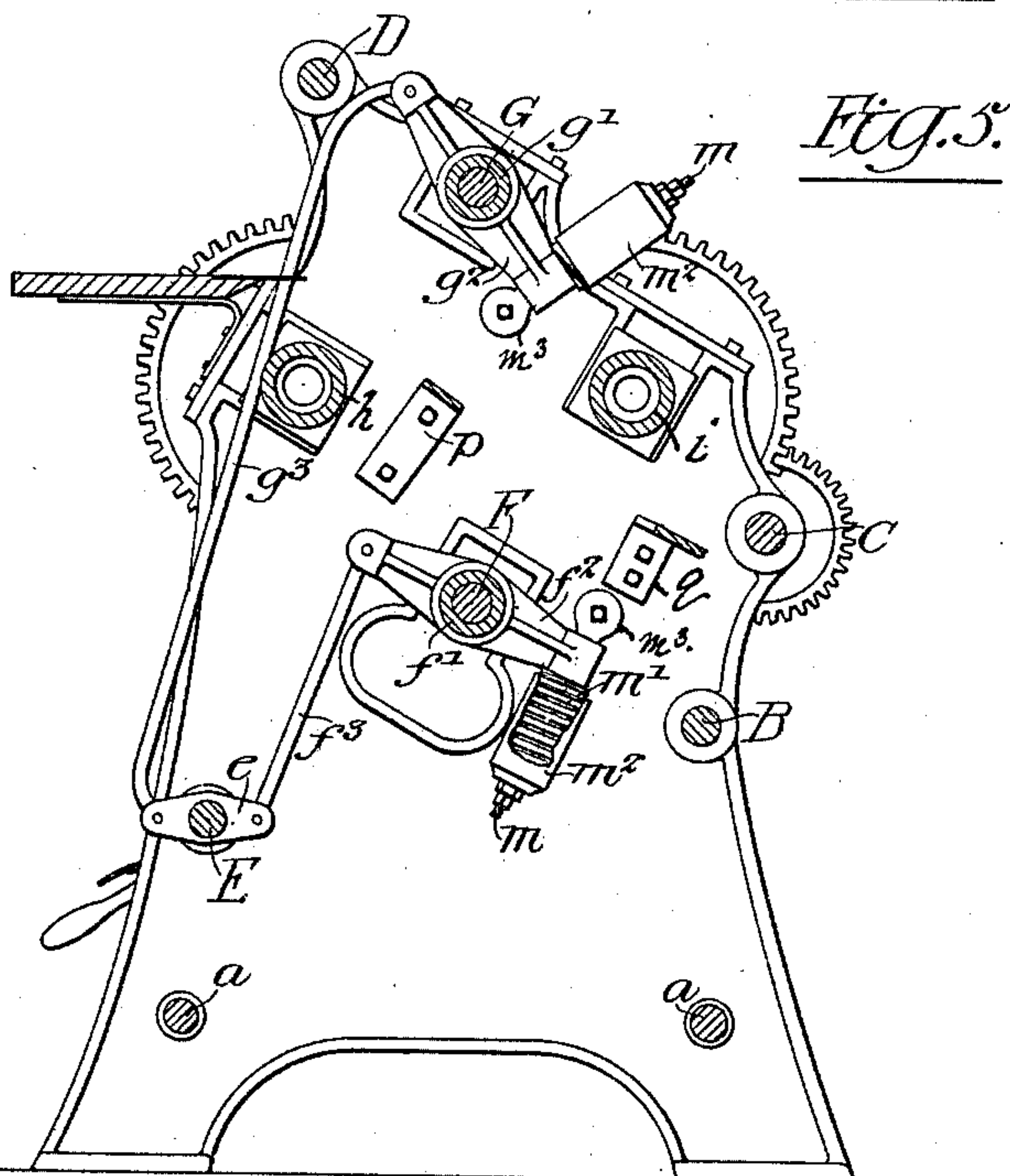
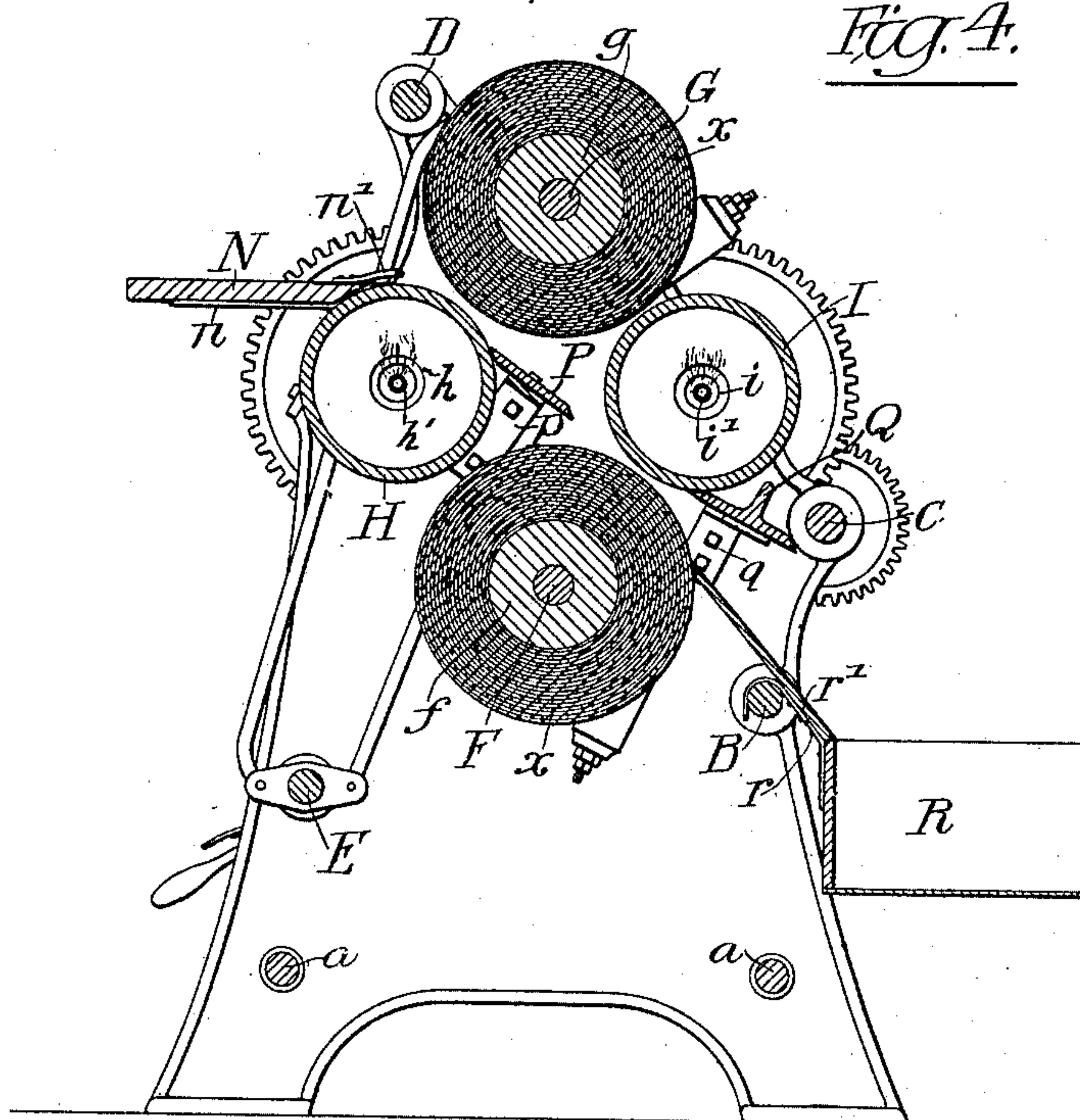
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3 SHEETS—SHEET 3.



Witnesses:

Herman C. Metcalf  
William E. Bradley

Inventor:

Ernest G. Smith  
by his Attorneys:

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# UNITED STATES PATENT OFFICE.

ERNST G. SMITH, OF COLUMBIA, PENNSYLVANIA.

## IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 719,385, dated January 27, 1903.

Application filed October 28, 1901. Serial No. 80,232. (No model.)

*To all whom it may concern:*

Be it known that I, ERNST G. SMITH, a citizen of the United States, residing in Columbia, Pennsylvania, have invented certain Improvements in Ironing-Machines, of which the following is a specification.

My invention relates to certain improvements in ironing-machines, and more particularly to certain improvements in a machine especially adapted for ironing collars, cuffs, and similar small and comparatively stiff pieces of laundry.

The objects of my invention are to provide a machine which shall completely iron a collar, &c., in one passage thereof through said machine, this latter being constructed so that the collar is given the same finish on both sides.

An additional object is to provide mechanism capable of such convenient adjustment that different varieties or grades of finish may be given to the articles operated upon, a further object being to provide means whereby the pressure between two or more series of heating and padded rollers may be quickly and uniformly adjusted.

These objects I attain as hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved ironing-machine. Figs. 2 and 3 are elevations of the right and left ends, respectively, of the machine illustrated in Fig. 1; and Figs. 4 and 5 are vertical sectional views on the lines 4-4 and 5-5, respectively, of Fig. 1.

In the above drawings, A A are standards or frames forming the body of the machine, these being tied together and braced by longitudinal bars *a*. Supported in suitable bearings of any ordinary type in the frames A are shafts B, C, D, and E, carrying gearing, as hereinafter described. Also supported by the frame are two other shafts F and G, which carry solid metallic rolls *f* and *g*, having wound on them thick layers of padding *x*. Also supported by the frame are two polished metallic rolls H and I, placed so as to bear definite relation to the padded rollers *g* and *f*, respectively, and carried in bearing-blocks located in recesses in the frame A of the machine, the hollow supporting-shafts *h* and *i*

of said rollers having gas-pipes *h'* and *i'* entering them and extending throughout their length. These pipes have nozzles *h<sup>4</sup>* and *i<sup>4</sup>* for the attachment of flexible tubing connected to sources of supply for air and gas and are provided with valves, as shown. The length thereof which extends within the hollow roller is perforated in order to permit the escape of gas in jets and is constructed in the manner well known to those skilled in the art.

The padded roller *f* is revolved through the medium of a train of gearing operated from a driving-pulley *b* on the main shaft B, this gearing consisting of a pinion *b'* on said shaft within the gear-case *b<sup>2</sup>*, meshing with a gear *c*, fixed to the shaft C. This shaft also has fixed to it the pinion *c'*, which in turn meshes with the double gear-wheel *b<sup>3</sup>*, loosely carried on the shaft B, the second set of teeth on this latter gear-wheel meshing with the gear-wheel *f<sup>4</sup>*, keyed to the shaft F, supporting the padded roller. The padded roller *g* is revolved in the opposite direction to that of the roller *f* by means of a sprocket-wheel keyed to the shaft C, which actuates a link chain *c<sup>2</sup>*, passing over a second sprocket-wheel, (shown in dotted lines in Fig. 1,) fixed to the shaft D. This shaft also carries a gear-wheel *d'*, which engages with the gear-wheel *g'* on the shaft G.

It will be seen from Fig. 1 that the shaft C extends beyond the frame A on the left-hand side of the machine and carries, splined to it, a collar *c<sup>3</sup>*, provided with teeth on both of its faces. This collar is movable longitudinally upon the shaft, which also carries loosely upon it two gear-wheels *c<sup>4</sup>* and *c<sup>5</sup>*, provided on the faces adjacent to the collar *c<sup>3</sup>* with teeth similar to those on said collar. This collar has a circumferential groove running around it, into which project pins from the end of a lever J, pivoted to a piece *j*, bolted to the frame of the machine, and provided with a guiding-piece *j'*, as shown. Each of the hollow shafts supporting the metallic rollers H and I also project beyond the frame A on the left-hand side of the machine and have keyed to them similar gear-wheels *h<sup>2</sup>* and *i<sup>2</sup>*, respectively, which engage with one another. In addition the shaft *i* has keyed to it a relatively smaller gear-wheel *i<sup>3</sup>*, this



latter meshing with the relatively large pinion  $c^4$ , while the gear-wheel  $i^3$  meshes with the relatively small pinion  $c^5$ .

By inspection of Figs. 1 and 5 it will be seen that the shafts F and G of the padded rollers are provided at both ends with collars  $f'$  and  $g'$ , respectively, these in turn being carried by lever-castings  $g^2$  and  $f^2$ . At one end these lever-castings have extending through them a bolt  $m$ , encircled by a spring  $m'$ , inclosed within the cylindrical casing  $m^2$ , which is provided with a lug  $m^3$ , whereby it is bolted to the frame of the machine. The other ends of the lever-castings have attached to them rods  $g^3$  and  $f^3$ , respectively, bolted to opposite ends of collars  $e$ , which are keyed or otherwise fixed to the shaft E.

Preferably on the outside of the frame A is supported a pawl  $e'$ , placed to engage a ratchet-wheel  $e^2$ , fixed to the overhanging end of the shaft E. In addition this shaft end has attached to it a piece  $e^3$ , constructed to receive an operating-lever  $e^4$ , by which said shaft may be turned. Fixed to the front edges of the frame are angle-pieces  $n$ , to which is fastened a receiving-table N, this table having its front edge beveled so as to extend partly over the heated roller H. Projecting forward from this table is a wire guard  $n'$ , extending parallel with and slightly above the said roller H, the same serving to guide a piece of laundry in the proper direction as it is being fed into the machine. On the inside faces of the frames A are bolted two other angle-pieces  $p$ , as shown in Figs. 4 and 5, these serving to support an intermediate table or guide-piece P, the beveled edge of which bears upon or is very slightly above the surface of the heated roll H and just beyond its point of contact with the padded roller  $g$ . This guide-table is so inclined as to deliver a piece of laundry from the rolls H and  $g$  at the proper angle to the rolls  $f$  and I. There is also a stripping-piece Q, carried on angle-brackets  $q$ , bearing upon the surface of the second heated roll I and serving to remove pieces of laundry which might possibly stick on the surface of said roll.

A receptacle R is supported from the frame of the machine by means of pieces of metal  $r$  hung on the shaft B, and there is a guide-surface  $r'$  bearing upon or slightly above the padding on the roll  $g$  and serving to deliver articles from the rolls into the receptacle  $r$ .

It will be seen that by my arrangement of oppositely-placed heating and padded rolls a collar, for instance, is finished on both sides in one passage through the machine, the heated roll H putting the finish on one side and the heated roll I giving it to the other.

Through the medium of the gearing on the left-hand end of the machine it is possible to vary the speed of the heated rolls relatively to that of the padded rolls, thereby securing a glossy or dull finish to the laundry, as desired. This is accomplished by throwing the lever J either to the right or left and secur-

ing it in this position by pinning it to the guide-piece  $j'$ . Thus if the lever is thrown so that the collar  $c^3$  engages with the pinion  $c^5$ , then the heated rolls are revolved, so as to have the same peripheral speed as that of the padded rolls, and the articles ironed are given a dull finish, while if the lever be thrown in the opposite direction, so that the collar  $c^3$  engages with the pinion  $c^4$ , the heated rolls are revolved, so as to have a higher peripheral speed than that of the padded rolls, thereby causing the article operated upon to receive a high polish. By means of the lever  $e^4$  the degree of pressure of the padded rolls upon their respective heated rolls may be varied, the amount of pressure required of course depending upon the thickness of the articles passed through the machine. By disengaging the pawl  $e'$  from the ratchet-wheel  $e^2$  the shaft E may be turned by means of the lever  $e^4$ , such action pulling down upon the rod  $g^3$  and pushing upon the rod  $f^3$  and moving the roller-shafts G and F, with their rollers, nearer the heated rolls I and H. The casing  $m^2$ , with the spring-supports for the lever-pieces  $f^2$  and  $g^2$ , is provided, so that should an unusually large or thick piece of material be passed between the rollers it may be possible for them to yield without any damage to the machine. As shown in Fig. 2, the pawl  $e'$  is double-ended, and the teeth upon the ratchet-wheel are made in two sets, so as to be suitably engaged by either end of said pawl, which is held on either side of its pivot by means of the weighted portion preferably cast integral with it.

The guide-piece P prevents the possibility of the piece of material operated upon striking the second set of rolls at an incorrect angle, as it acts to strip them from the heated roll H and delivers them in proper form to the rolls I and  $f$ .

I claim as my invention—

1. In an ironing-machine, the combination of a plurality of heated and padded rolls, mechanism for turning the padded rolls and other mechanism independent of the same for turning the heated rolls, said mechanism including gear-wheels on said roller-shafts operatively connected together, a driving-shaft, two gears loosely carried thereby and a clutch for connecting at will either of these gears with the driving-shaft, said loose gears being operatively connected with the gears for turning the heated rolls, substantially as described.

2. The combination in an ironing-machine of a frame, a heated and a padded roll having supporting-shafts and carried by said frame, means for turning said shafts, a lever engaging each end of the shaft of one of the rolls, a bolt attached to the frame and having upon it a spring, one end of the lever being in engagement with the spring on said bolt, with means for applying power to the other end of the lever and thereby moving the shaft and roll engaged thereby nearer to or



farther from the other roll, substantially as described.

3. The combination of a frame, a heated and a padded roll carried thereby and provided with driving mechanism, movable bearings carrying one of said rolls whereby its distance from the other roll may be varied, a lever-casting for each of said movable bearings, a bolt attached at one end to the frame and engaging said lever-casting, a spring on the bolt also in engagement with the lever-casting and provided with an inclosing cas-

ing, a revoluble shaft, means connecting said shaft with the free ends of said lever-castings and means for turning the shaft, substantially as described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNST G. SMITH.

Witnesses:

AUGUST C. NOLLE,  
P. W. BENDER.